Themes

As Lancaster County has grown, so have concerns for maintaining air and water quality, protecting open space, streams and wetlands, ensuring the availability of land for parks and wildlife preserves, and retaining land for agriculture and other resource production. As a part in the development of a new Comprehensive Plan, the City of Lincoln-Lancaster County Planning Department decided to evaluate the natural resources in the County using Geographic Information System (GIS) technology. As part of a program called Natural Resources GIS (NR-GIS), GIS technology has been used to create maps of natural resources in Lancaster County showing information such as surface water, groundwater, soils, wildlife, and vegetation. These maps revealed trends in Lancaster County and can be used in combination with the Comprehensive Plan and short-range planning processes to help the community decide how to grow in the future.

NR-GIS identified several themes that are present in the natural resources of Lancaster County. While Lancaster County plays a large part in our lives, it is a relatively small piece of a very large environmental system. Activities that take place in Lancaster County influence the surrounding counties and states. Knowing this, four themes stand out among all of the issues discussed in the NR-GIS Summary Report. The major themes are:

- *Lancaster County Is Home To Unique and Highly Sensitive Biological Communities;*
- *Lancaster County is Shaped by Several Major Watersheds;*
- *Lancaster County's Evolving Natural Features can help the community decide where urban, rural and agricultural uses should be in the future; and*
- *All Natural Resources in Lancaster County are Interconnected in a Complex and Sensitive Network of Systems*.

Lancaster County Is Home To Unique and Highly Sensitive Biological Communities

There are several unique and highly sensitive biological communities in Lancaster County, including saline wetlands, native tallgrass prairie, Federal and State Threatened and Endangered Species, and Wilderness Park. These sensitive biological communities are a part of Lancaster County's heritage, and as such the community should decide what role these sensitive biological communities will play in the future.

Saline wetlands are considered by many to be one of the most rare and threatened natural communities in the State. They are home to specialized salt-tolerant vegetation and insects, and provide habitat for seasonal migratory birds. Wetlands provide habitat for greater than half of the total number of bird species in the State. Additionally, saline wetlands are the only habitat for the Endangered Salt Creek tiger beetle and saltwort. Saline wetlands are located along Little Salt Creek, Salt Creek, Rock Creek and associated tributaries.

Tallgrass prairie is another highly sensitive and threatened natural community in Nebraska, and includes species such as the Endangered Western Prairie Fringed

Orchid. Prior to European settlement Lancaster County was covered by native prairie. Today, several prairie fragments still exist in Lancaster County. These prairie fragments primarily are located in the western portion of Lancaster County and are used by several Threatened and Endangered for habitat and migration.

Threatened or Endangered plants and animals are found in or pass through Lancaster County. Several species of wetland plants, as well as woodland plant species in Lancaster County, are Threatened or Endangered. Because most of Lancaster County drains into Salt Creek, which leads to the Platte River, many species downstream can be impacted by the activities within Lancaster County.

Wilderness Park is a unique environmental setting, which harbors habitat for a variety of species.

Lancaster County is Shaped by Several Major Watersheds

Watersheds are the natural land boundaries dividing drainage basins within the County. There are four major watershed basins that shape Lancaster County, including Salt Watershed, Middle Big Blue Watershed, Big Nemaha Watershed and Little Nemaha Watershed. Each major watershed basin has smaller sub-basin watersheds. All of these watersheds drain into lakes and streams in the county.

Streams in Lancaster County are far different than they were prior to European Settlement. These changes, such as channelization, levees and lakes, affect floodplains, vegetation and wildlife. Floodplains move as agriculture and urbanization occur within the County. Vegetation and wildlife adapt to the changes in streams and watersheds. Understanding the role of upland versus bottomland watershed areas and their relationship to the functions of watersheds is key to natural resources in Lancaster County. Relating the varying influences that uplands and bottomlands have on watershed functions can impact natural resources policy decisions.

Managing natural resources on a watershed level can take into consideration the natural adaptation of floodplains, wildlife and vegetation as a system. Careful planning can be used to maintain the long-term health of watershed-systems.

Lancaster County's Evolving Natural Features can help the Community decide where urban, rural and agricultural uses should be in the future

Present-day Lancaster County has been shaped by the past decisions and developments within the County. Understanding how these growth decisions cumulatively have impacted our natural resources gives policymakers an invaluable tool for determining how Lancaster County should be developed, maintained or preserved for the future. Recognizing that fragments of some highly unique, rare and sensitive species hang in the balance of the present day decisions, today, there is an important decision to be made in the face of natural resources in the County.

The natural features studied in NR-GIS demonstrated that land has features that make it more or less suitable to certain land-uses. These natural features can be used, as planning tools, to indicate what types of land uses should occur in certain areas. For example, in areas where groundwater is poor in quality and inadequate quantity, residential wells may not support residential development. These indicators may be used to determine where urban development may be more or less efficient.

Moreover, these features showed that there are areas of the County that are well suited to be used for agricultural development. Land is not equally suited to support agricultural production; some land is less suitable while other land is more suitable. This is not to say that agricultural production cannot occur in areas of less suitability, just that there exist prime areas for agriculture. These areas have fewer barriers to land production. Factors that determine land suitability include water quality and soil type. In general, land that is more suitable for agricultural crops is found in the north and west portions of the county.

All Natural Resources in Lancaster County are Interconnected in a Complex and Sensitive Network of Systems

While natural resources can be studied individually, in order to understand specific roles and functions, they are actually a small part of a large interconnected system. Natural resources impact one another. For example, decisions that are made with regard to floodplains, will unquestionably impact vegetation, wildlife, wetlands and vice versa. However, this linkage is sometimes hard to distinguish or understand. By approaching natural resources policy decisions as an interconnected system, impacts to all system components can be better understood and mitigated.

Map 10 outlines several areas of sensitivity and unique characters within the County. These areas are general representations of the themes or trends in the County. The "boundaries" of the areas of sensitivity are fluid and as such can and will change over time, and serve only to group general qualities.

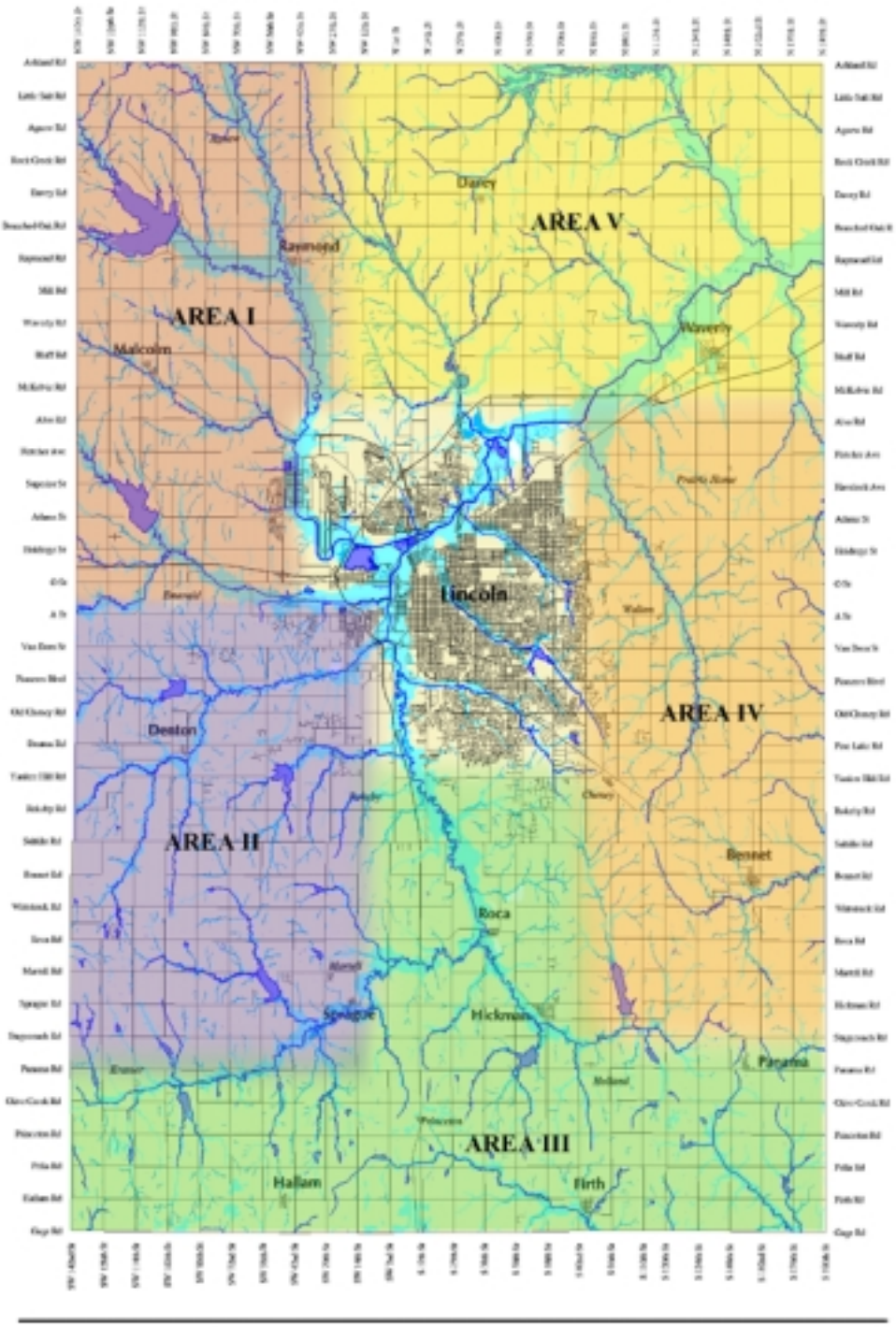
Areas I and II contain tallgrass prairie remnants, the dominant vegetation type prior to European settlement. An area near Denton, Nebraska contains the largest contiguous sections of tall grass prairie in the State. In addition, Areas I and II do not have enough high quality or quantity groundwater to support substantial acreage development.

Areas III and IV have or will have several reservoirs and impoundments. Currently, the Nebraska Game and Parks Commission is involved in lake habitat restoration on many of the reservoirs in Area III. Area IV, the Stevens Creek Watershed is slated to have several small farm pond impoundments constructed within the next ten years for watershed maintenance. Assuring the long-term viability of the reservoirs and impoundments in Area III will depend heavily on the management of sediment from within the watershed. Maintaining and improving the free-flowing nature of the streams in Area III is important for the vegetation and wildlife within and near the streams. Additionally, maintaining and improving the streams is important for flood control downstream. With this in mind, less flash flooding will take place downstream as well as more infiltration and groundwater recharge.

Area V harbors both freshwater wetland resources as well as the rare and threatened

Easter Saline Wetlands. This area has limited quality drinking water due to the high salt contents from the Dakota Sandstone formation that makes up this part of the County.

In all, these five areas characterize Lancaster County. By evaluating the natural resources within the County as a system, responsible planning decisions can me made. As the citizens of Lancaster County decide what is important based on this summary report, policymakers can feel confident in the decisions they will make for the future of the County.



Natural Resources Geographic Information Systems

Interpretive Map

Map 10